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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/602,253	06/23/2003	Salman Akram	2269-3091.SUS (96-0890.04)	1942
24247	7590	03/17/2004	EXAMINER ANDUJAR, LEONARDO	
TRASK BRITT P.O. BOX 2550 SALT LAKE CITY, UT 84110			ART UNIT 2826	
DATE MAILED: 03/17/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/602,253	Applicant(s) AKRAM, SALMAN	
	Examiner Leonardo Andújar	Art Unit 2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) 5 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>06/03 & 10/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Acknowledgment

1. The pre amendment filed on 10/03/2003 has been entered. The present Office action is made with all the suggested amendments being fully considered. Accordingly, pending in this Office action are claims 1-8.

Election/Restrictions

2. Applicant's election without traverse of species 1 (claims 1-4 and 6-8) in a communication filed on 02/23/2004 is acknowledged.

Priority

3. An application in which the benefits of an earlier application are desired must contain a specific reference to the prior application(s) in the first sentence of the specification of in an application data sheet (37 CFR 1.78(a)(2) and (a)(5)). The specific reference to any prior nonprovisional application must include the relationship (i.e., continuation, divisional, or continuation-in-part) between the applications except when the reference is to a prior application of a CPA assigned the same application number.

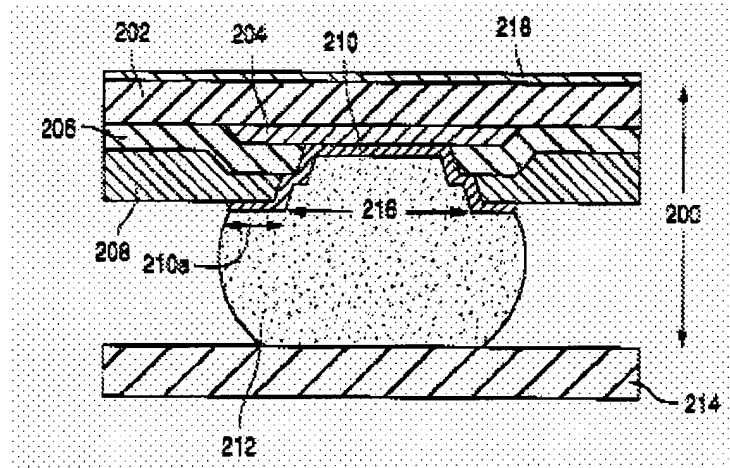
Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

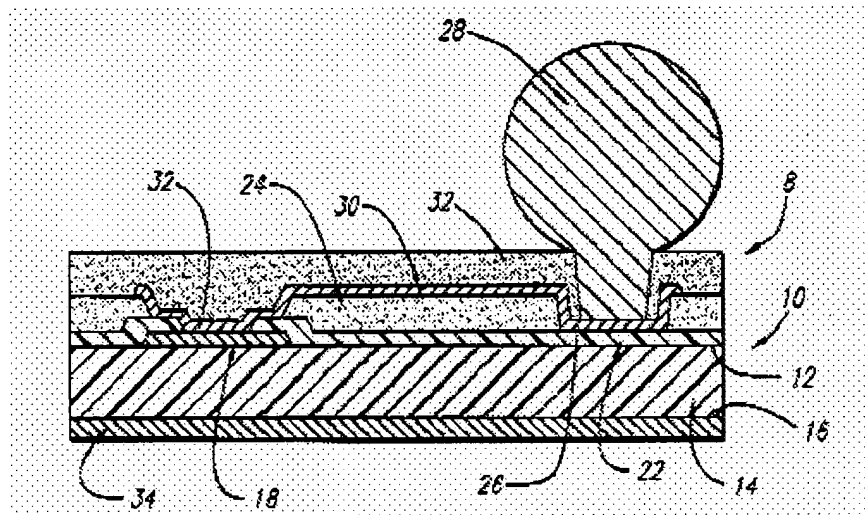
5. Claims 1-4 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schaefer et al. (US 6,075,290) in view of Elenius et al. (US 6,441,487).

6. Regarding claim 1, Schaefer shows most aspects of the instant invention including a semiconductor substrate 202 having a conductive trace; a passivation layer 206/208 and a metal lined via 210 in the passivation layer and in electrical communication with the trace. Schaefer shows that the external electrode 212 overlaps the electrodes 204 (fig. 2 & col. 5/lis. 41-44).



7. Schaefer does not show that the conductive trace is over a dielectric layer. Elenius (e.g. figs. 1 and 2) shows a semiconductor substrate 14 having a dielectric layer 22 on an exposed surface, a conductive trace 30 on the dielectric layer and a passivation layer 24 over the conductive trace. According to Elenius this type of embodiment provides an improved chip scale package that has a small form factor, i.e. the resulting chip scale package is not larger than the size of the original integrated circuit (col. 3/lis. 16-41). Elenius discloses that the size and the amount of the solder bumps are compromised due to the fact that the solder pads are typically located at the

perimeter of the integrated circuit. The solder bump contact pads can be redistributed internally, away from the outer perimeter of the integrated circuit; the size of such solder bumps is unchanged. Therefore, the requirements of complex integrated circuits can be fulfilled (col. 2/lis. 25-40).



It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the conductive trace disclosed by Schaefer over a dielectric layer to provide an improved chip scale package having a small form factor, i.e. the resulting chip scale package is not larger than the size of the original integrated circuit, and to internally redistribute the solder bump contact pads, away from the outer perimeter of the integrated circuit, in order to fulfill the requirements of complex integrated circuit as taught by as taught by Elenius.

8. Regarding claims 2 and 3, Schaefer teaches that the metal lined via is formed of a size and shape to receive approximately less than the 50% of an overall height of a substantially spherical interconnection element 212. Schaefer does not explicitly disclose specific values such as 30% or between 10 and 50 % of the overall height of

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the interconnection element 212. It would have been an obvious matter of design choice to make the lined via having a size of approximately 30% or between 10 and 50% of the overall height of the interconnection element 212, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

9. Regarding claim 4, Schaefer shows that the via includes sloped sidewalls.

10. Regarding claim 6, Elenius shows that the conductive traces includes copper (col. 7/lis. 1-28).

11. Regarding claim 7, Elenius shows that the passivation layer comprises polyimide (col. 6/ll. 45).

12. Regarding claim 8, Schaefer in view of Elenius discloses the claimed invention except for metal lined via comprising a material from the group of gold, platinum, and tungsten. It would have been obvious to one having ordinary skill in the art at the time the invention was made to metal lined via disclosed by Shafer in view of Elenius comprising a material from the group of gold, platinum, and tungsten, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonardo Andújar whose telephone number is 571-272-

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1912. The examiner can normally be reached on Mon through Thu from 9:00 AM to 7:30 PM EST.

14. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

15. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

03/03/2004


NATHAN J. FLYNN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800